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ABSTRACT

New types of data must be collected to reflect changes in the educational delivery system as training is provided by nontraditional or non-institutional services. Educational data should be derived not only from schools, but also from private industry, the military, volunteer organizations, and other agencies which provide training. Data should be of higher quality and should be more comparable between and within states. Better indicators of the elements that strengthen academic achievement are needed, as well as data that can be used to demonstrate the cost-benefit payoffs of various instructional programs. Ten broad issues which should help illuminate the specific data that will be necessary are discussed: (1) development of human resources; (2) implications of the changing population in terms of minority students and percentage of the population in school, working, or retired; (3) importance of reconfiguring and redefining education; (4) impact of technology on education and economic development; (5) effects of an aging, changing workforce; (6) special problems of urban and minority youth; (7) need to define and achieve educational quality; (8) weaknesses in foreign language instruction; (9) inter-level educational relationships; and (10) development of an appropriate federal role in educational policy. (GDC)

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Some Perspectives on the Emerging Environmental Context

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Educational Data Needs for the Balance of the 20th Century: Some Perspectives on the Emerging Environmental Context
(A Paper Prepared for the National Center for Education Statistics)

Michael D. Usdan
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This paper is written from the perspective of a generalist who is concerned about the whole panoply of social, economic and political issues which impact elementary and secondary education. The author is not a data analyst, nor does he have particular expertise in the whole area of education data collection. The perspectives in this paper will be those of a generalist who believes that the data historically collected in education have been too isolated from other information sources. My contention is that educational data in the future should not only be derived from schools and other formal educational institutions, but also from other deliverers of educational or training services such as the private sector, the military, voluntary associations and the countless other organizations and agencies which provide education and training services.

Education must be defined more generically to consist of more than just schools. Outcome measures relating to student performance should be stressed and significant non-school centered social and economic information from a broad range of data sources both governmental and non-governmental in origin must be employed in efforts to explain student achievement. Definitions of students and analyses of the learning process should be broadened to include recipients of educational services in a whole range of non-school settings. Data must be packaged efficiently and more concisely and presented in ways that are easily understood by the lay public and not just by education

specialists.

As the recent reform movement indicates, political and civic leaders, as well as the general public, are willing to support increased funding for schools if they are convinced that the dollars expended are generating positive results. In other words, there will be more dollars for education only if there is more education for the dollars. This political fact of life augurs an era of accountability in which schools in the increasingly competitive struggle for resources will have to justify what they do to a much great extent on a cost-benefit basis. Unless the current weaknesses of national education statistics are remedied and existing inconsistencies and inaccuracies ameliorated, justification of increased expenditures will not be supportible or politically viable and the necessary fiscal support will not be forthcoming in an aging nation in which fewer than 30% of the adults have their own children enrolled in elementary and secondary schools.

The reform movement and the heightened interest of Governors, civic elites and influential business leaders will not last inderinitely and certainly will not be sustained without appropriate and supportible data that can indicate which reforms work and which do not. The resources will not be available to support all of the multiple reforms being enacted in states throughout the country. We need to develop data that are qualitatively better and comparable within and between states. We also must build better indicators that can help us determine more definitively the elements that strengthen student achievement or performance. The timing of the NCES efforts to reassess in a comprehensive manner its data gathering processes could not be more propitious because of the unique public policy saliency now

being enjoyed by elementary and secondary education because of the current reform movement.

Let us now look at the larger societal context in which elementary and secondary education data issues must be addressed. Broader human capital and adult learning issues also must be addressed in a rapidly changing and increasingly interdependent social, political and economic environment.

What are some of the major issues which will so markedly influence our future and have such consequential ramifications for all of us? My favorite philosopher is Pogo who says that we are surrounded by insurmountable opportunities. I believe that this is indeed the case in education where the recent spate of nationally publicized reports, as mentioned earlier, has given the enterprise positive "front-burner" public visibility in ways that have not been experienced since the Sputnik era almost three decades ago. If one accepts the old adage that invisible politics is poor politics, then the existing window of opportunity should be capitalized upon, and education at all levels should remain part of the "warp and woof" of major public policy issues and concerns. Indeed, some skeptics are fearful that the educational balloon may be deflated as quickly as it was inflated once the political rhetoric and the freshness of the recent highly publicized national reports and recently enacted state reforms have abated. A growing number of the nation's most prestigious business and governmental leaders are now espousing the importance of education and human resource development to the nation's economy and comprehensive reform legislation has been enacted in states like Texas, South Carolina, Mississippi, California, and Florida among others. Governors like Hunt of North Carolina, Dupont of Delaware, Robb of Virginia, Alexander of

Tennessee, Riley of South Carolina, Winters of Mississippi and others have been in the forefront of political and economic efforts to strengthen the quality of and support base for education. Business leaders from major corporations such as IBM, Control Data, American Can, Hewlett-Packard, the Bank of America, Dow Chemical, Proctor and Gamble, and numerous other representatives from the private sector throughout the country are becoming engaged in education and related human resource development issues in unprecedented and varied ways.

Major national business organizations such as the Conference Board, the Committee for Economic Development, the Chamber of Commerce, the National Alliance of Business, the Business Roundtable, and their counterparts at the state and local levels are undertaking education-related activities or discussing the significance of education issues with unusual interest and even zeal in a number of cases. Education is being viewed more commonly now not as a consumer of resources but as a necessary investment in human capital and the nation's economic viability. This interest and support will be sustained, however, only if we have quality data that can be used to demonstrate the cost-benefit payoffs of various instructional programs as manifestd in improved student performance.

I would like to amplify these points by stressing a number of major issues which should help to illuminate the kind of data that will be necessary, leaving the task of defining the specific data to be gathered and procedures to be followed to others more qualified than I am to discuss these matters. I hope that this "environmental scanning" will be helpful to NCES as it hopefully identifies its data collection strategies not in institutional isolation but within the context of complex issues in an changing and interdependent social matrix. These

issues transcend education per se and will require diverse information that entails many factors that are not directly related to the school environment.

Among these somewhat interrelated issues are (1) the need to develop and invest in human resources; (2) the implications of changes in the nation's demography; (3) the importance of reconfiguring and redefining education; (4) the impact of technology on educational and economic development; (5) the ramifications of an aging and changing work force; (6) the special and acute problems of urban and minority youth; (7) the need to define and achieve quality at all educational levels; (8) the weaknesses of foreign language instruction; (9) inter-level educational relationships; and (10) the development of an appropriate federal role in the shaping of educational policy.

These ten issues, of course, hardly represent either a comprehensive or all-inclusive litany of major concerns. Some of these issues will be discussed rather extensively, while others will be alluded to briefly or barely mentioned. Collectively, however, they do form the basis for projecting a plausible change-laden future scenario in which education issues will be of great import and policy decisions must be predicated upon richer and more diverse and reliable sources of information.

The Need to Develop and Invest in Human Resources

In the past few years, the importance of education has been discussed in the newer and broader context of its central role in the collaborative efforts that will be necessary if the nation's economic productivity is to be improved, its relative economic decline counteracted, and the erosion of its international competitive position

arrested. Education is pivotal to these national concerns as is the growing awareness that education remains the key to maximizing the nation's human capital and economic development. Support for education in the business community, for example, increasingly is being viewed not as mere philanthropy but as sheer self-interest. The economy and its needs, in other words, are the contemporary Sputnik and serve as a lever for the support and reform of the educational enterprise. In essence, the key to education's new salience is the society's need to develop its human capital at all age levels with emphasis not just on traditional school age youngsters and institutions but also on the large numbers of adults who need retraining in a period when the economy is undergoing such wrenching transformations. Education, then, as mentioned earlier, ought to be defined more generically as consisting of much more than formal elementary and secondary schools or colleges serving the younger segments of the population. Data should be gathered and shared between and among the diverse educational delivery systems and the isolation of schools from other providers of education should be ended. Information about successful teaching and learning processes in other environments as well as in schools ought to be analyzed and disseminated reciprocally so that there are constant exchanges between schools and other deliverers of education and training services.

There is a growing appreciation throughout the society that human resources are the dominant factor accounting for growth in national income and that they account for the major share of the nation's total economic output. Recognition is mounting that the current economic challenge is as fundamental as the change from an agrarian to an industrial economy after the Civil War and that education generically

must be linked inextricably to economic development and be viewed as an essential investment in the future. Data on the educational process and ways of improving student achievement should be gathered from all deliverers of education services and not just from traditional schools serving 5 to 17 year-olds.

The Implications of Changes in the Nation's Demography

Demographic data are of particular importance to the entire society. In a world in which more than 75% of the total population is of color, we are going to have redefine what the words "majority" and "minority" mean. Indeed, more than 25% of our public school population already is of minority origin, and the proportion of Blacks, Hispanics, Asian-Americans and Native-Americans continues to grow. By 1990, 25% of the total population will be minority. In the 1982-83 school year, for example, 46% of the public school enrollment in Texas was minority, 43% was minority in California, 32% in Florida and New York, 33% in Arizona and Maryland, 28% in New Jersey, and 57% in New Mexico.

The Hispanic population is the fastest growing segment of the minority population with approximately two-thirds of the nation's Hispanics being located in only three states (California, Texas, and New York). More than 85% of the Hispanic population lives in only nine states (New Jersey, Florida, Colorado, Illinois, New Mexico, and Arizona in addition to the aforementioned three states). This dramatic skewing of the distribution of the Hispanic population creates a serious problem of demographic illiteracy as most of the country remains blissfully ignorant of the full import of the dramatic growth in the number of Hispanics. Indeed, Hispanics are the youngest population group so additional increases in the Hispanic population are

quite predictable.

California, our largest state, by 2000 will be "majority-minority." Twenty-three of twenty-five of our largest school systems already are "majority-minority" and unless we improve the quality of the education and the life chances of these massive cohorts of minority youngsters, the social fabric of our society may well be imperiled.

The demographic phenomenon of "gray power" also will be of increasing significance as the population ages and the number of citizens 65 years of age and older rapidly expands. By 1990, the number of youngsters under 20 will fall below 30% of the nation's population for the first time in history. In fact, in 1983, there were more people 65 years of age or older than teenagers. The implications of these changes are brought forth starkly by an analysis of the ratio of working to retired people. In 1940, 10 citizens worked for every retired person, in 1985 the ratio is 5.3 to 1 and a 4.7 to 1 ratio is projected for 2000. By 2030, a 2.7 to 1 ratio of workers to retired persons is considered possible.

Thus, growing numbers of retired individuals will be dependent upon a younger population, increasingly minority in composition, to sustain the economy in general and to maintain the viability of an already rather vulnerable social security system.

It is estimated that more than 90% of the 1990 workforce and more than 80% of the 2000 workforce already are employed in the market place. Thus, traditional schools serving the young will be dealing with only a small proportion of the workforce, a full one-half of this younger population will be minority youth who will constitute, as noted earlier, a much higher percentage of the next decade's diminished youth cohort. It is projected that by 2000, approximately one-third of the

young will be socially and/or economically disadvantaged.

Such demographic data are of singular importance and should be widely disseminated not only to educators but also to citizens throughout the society. These rather startling numbers reflect compellingly why traditional schools will have to broaden their base of political support with less than 30% of the population currrently having youngsters enrolled. Educational leaders can no longer assume the public support they could generate, for example, when 60 or 70% of the population had children in the schools in the rapid growth era after World War II. Schools will have to reach out to cultivate new and broader constituencies if they are to acquire the necessary support as older citizens and other groups make increased demands for services in a period of declining resources. Public schools will have to be viewed as a civic responsibility by the majority of the population which will not have children involved or a direct stake in the educational process. Educators can no longer assume that they have a broadly gauged support base and certainly cannot afford the luxury of pulling the wagons around in a circle and shooting inwardly as has often been the case in the intramural or internecine warfare which has occurred with some frequency over collective bargaining, church-state relationships, funding allocations, desegregation, interlevel responsibilities, and other issues.

The Importance of Reconfiguring and Redefining Education

As part of the efforts to broaden their support base, educational leaders will have to reconfigure and essentially redefine education as constituting more than just traditional schools or formal institutions of learning. The expanded coalition which they will be compelled to

build should include preschool children, senior citizens, the numerous older workers who will have to be retrained, and others in the society who will require educational and/or training opportunities in a changing economy. Multi-agency and collaborative human service thrusts within the public sector and growing partnerships between the public and private sectors will become more essential as resources decline. Educators have unique social and institutional penetration into the grassroots of virtually every community. This outreach will be a great asset to them in efforts to reach out politically not only to buttress and expand their own support base but also as they seek to help fill the escalating educational needs of adult groups such as senior citizens, older workers who need retraining, and single and two-career parents with "latchkey" children. As these collaborative efforts evolve, data sources, of course, would have to be expanded and diversified to accommodate to the needs of a much more heterogeneous student population with more pluralistic learning objectives.

Our society must recognize to a greater degree than it has thus far the incredibly diverse and extensive array of non-mainstream educational service providers such as industry, labor unions, some 9,000 proprietary schools and colleges, 300 businesses with a site called "college" or "university", the far-flung and extensive military educational system, hospitals which provide their own educational programs, major service agencies with educational programs such as the Girl Scouts and United Way, diverse day care centers, and so on almost ad infinitum.

Industry, for example, invests approximately $40 billion in education and training, a total which rivals the investment made in traditional public higher education. Control Data spends hundreds of

millions of dollars in its Plato system and innumerable other corporations such as IBM, Xerox, and General Motors are allocating substantial resources to improve the quality of education and training received by their employees. Wang, Rand, Northrop and A.D. Little actually offer degrees under the aegis of their corporate educational activities and Hamburger and Holiday Inn Universities are realities. Such non-traditional post-secondary educational enterprises already are educating well over one-half of the adults in the nation. This is hardly an inconsequential shadow system and traditional educators and other providers of human resource development services must be more cognizant of the collaborative opportunities as well as the potential competitiveness of this somewhat parallel and non-traditional system. More information must be systematically compiled about this important and rapidly expanding private sector based educational system.

The Impact of Technology on Educational and Economic Development

The area of technology confronts the entire society with a host of challenges and opportunities. The unprecedented technological revolution which confronts us will reshape virtually every facet of our lives in varied and unpredictable ways. The world of computers, discs, satellites and so forth is upon us and our young people from all socio-economic backgrounds will be motivated in new ways to partake in the technological era which has dawned.

Fields like science and math, of course, are essential for technological progress and our society's need for well educated citizens in these areas increasingly is being recognized. The crisis in math and science education already is generating significant changes in educational policy which would not have been politically viable just a short

time ago. Notions like merit pay, differential salaries and roles for teachers, and the recruitment of part-time teachers from the private sector or the ranks of the retired would not have received serious attention in either state legislatures or the U.S. Congress without the widespread national consensus that our economic development is inextricably linked to the quality of our educational system and that our nation's scientific literacy cannot be permitted to lag any longer if we are to compete in an increasingly interdependent world economy. The saliency of this issue compels us to carefully gather information about the successes and failures of the varied efforts which are being initiated throughout the country to attract more qualified science and math teachers.

The reality is that the tempo of economic and technological change is such that partnerships between the public and private sectors are essential. There simply is no way in which schools or most other public entities can maintain state-of-the-art equipment or keep up with the new technologies. Creative tax and related policies must be developed which facilitate intersector collaboration if we are to meet the international economic challenges from nations like Japan and West Germany. Information ought to be collected and disseminated which focuses upon what works and what doesn't work in fostering cooperation between and within sectors.

The Ramifications of an Aging and Changing Workforce

The changes which are shifting the foundations of our economy obviously have deep ramifications for educators. Dramatic and continuing reductions in the manufacturing or industrial areas will require the development of a workforce better able to perform in the

information and service providing realms. We will thrive if we sell our wits - if not our goods - to the world and our major future resource is brainpower.

The challenge educationally is not only to improve basic skills but also to react to the changes in occupational context which will compel more workers to shift from "take/place/lift/put" jobs to work like computer programming which requires listening and reasoning skills as well as adequate backgrounds in fields like math and science. These challenges cannot be met by single sector approaches. As a society, we can no longer afford the luxury of fragmentation or "turfsmanship". The challenges will require institutional collaboration between and among education, business, labor and government. Education and training must be viewed more generically and as a multi-sector and societal responsibility in which we all have a stake and role. The Digital Corporation, for example, allocates from 10 to 20% of the time of its engineers and other highly skilled personnel for in-service training so that they can keep abreast of the phenomenal rate of technological change which gives the schooling of a newly-graduated engineer only a five year period of relevancy. Organized labor also is acutely aware of the continuing need of reeducating and retraining its members. Indeed, recent contracts in the auto industry, for example, explicitly provide time for training or educational activities.

As a society, we can no longer afford parallel and costly human resource development systems which rarely if ever interact and collaborate. We are no longer rich or wealthy enough to afford such costly duplication and fragmentation. Business, for example, is compelled to spend many millions of dollars on remedial education, a responsiblity which quite logically could have been assumed to have

been within the purview of the schools. AT&T, for example, which spends almost $2 billion annually for educationally related activities, expends considerable money teaching thousands of employees basic writing and arithmetic skills. Metropolitan Life, like numerous other corporations, devotes a large porportion of its training program to remedial work in the basics. Efforts should be made to collect information about such remedial efforts to see if certain practices can be effective in public institutions.

Despite these problems, the United States has great advantages once we "get our act together" and generate the necessary intersector linkages. We have a strong base and tradition as a creative entrepreneurial society and our education system despite its weaknesses has produced a uniquely well educated and adaptable population. Parenthetically, it is important to point out that efforts by educators to build partnerships with the private sector should not be limited only to large corporations. Approximately 580,000 small businesses are started each year in this country and two-thirds of the new jobs are created in smaller enterprises. Thus, the opportunities for partnerships between education and business in many cases can be more effectively developed at the local or regional level where much of the action if not the rhetoric takes place.

A dominant and recurrent theme articulated in all of the recent reports on education relates to the concern about the quality of the teaching force. There is widespread consensus that any efforts to strengthen education and the development of our human capital must be predicated upon improving the status and intellectual caliber of the classroom teachers who are at the core of the educational enterprise. In recent years with the constraints on governmental spending there has

been a drain of talent from the public sector and service fields in general. Teaching without question is not attracting our "best and brightest" young people and more vigorous attempts must be made to replenish and strengthen the ranks of those responsible for developing the future intellectual capital which is so vital to our security and well-being.

The problem is most acute, of course, in areas like math and science where the economic and status rewards of teaching cannot begin to compare with the salaries and recognition available to talented individuals in business and industry. We have finally recognized that we have a crisis of national proportions with approximately only one-half of our math and science teachers appropriately certified. Throughout the country numerous proposals are being made to differentiate roles and salaries, develop merit pay schedules, and recruit part-time instructors from the private sector as efforts intensify to attract and retain talented teachers. A number of school districts have already implemented such plans and recently large states like Florida and California among others have enacted comprehensive reform legislation which has included provisions for merit compensation or differential categories of teachers who would receive extra pay. Data on these efforts should be collected and careful evaluation made of what works and what doesn't work on a cost-benefit basis.

The quality issue, of course, has been exacerbated by the fact that women, who still constitute approximately two-thirds of the nation's classroom teachers, now have expanded career options. Talented and intellectually able women who in the past entered teaching because it was the traditional and logical thing for them to do are now entering other professional fields. Within the past decade or so, a

"perverse form of indentured servitude" has been clearly weakened as many of our most talented women quite appropriately select a much broader range of career options. For example, in 1965 only 6.5% of medical school graduates were female, in 1980 the percentage soared to 23.4%; comparable figures for law school graduates were 3.2% in 1965 and 30.2% in 1980 respectively. In 1950, only an infinitesimal .3% of the engineering graduates were women, by 1980, 8.8% were female. It is reasonable to assume that many of these women doctors, lawyers and engineers in prior years would have been school teachers. Their loss to education, of course, and the continuing expansion of career opportunities for able women further compound the problem of attracting into teaching adequate numbers of our most intellectually able young people. We should develop detailed information on this significant phenomenon which has such consequential ramifications for the quality of the teaching force in the years ahead.

The Special and Acute Problems of Urban and Minority Youth

No litany of major human resource or educational issues can or should ignore some mention of the acute problems of urban and minority youth. The saliency of the demographic changes and concomitant growth in minority population were discussed at the outset of this paper. Special attention, however, must be focused upon the shocking reality that almost one-half of black teenagers have no jobs and that youth unemployment is higher than 20%, more than twice the overall unemployment figure for the country. Dropout rates are as high as 40% in many of our urban school districts. These numbers project starkly the danger of our urban schools becoming, in one college president's words,

"warehouses for the angry or staging areas for anarchy". We need to analyze these issues even more carefully and collect information which will provide the basis for implementing badly needed remedies in our problem plagued urban districts.

In addition to the traditional morally compelling arguments for equity or the equalization of educational opportunity, there are now selfish, vested-interest reasons for wanting to improve big city schools whose student population will be 90% minority by 1990. As the demographic data reflect, our population is aging and shrinking cohorts of young people must be productive to generate the revenues necessary to support services in a changing economy. More of these youngsters obviously will be of minority origin and they represent valuable human resources which our nation and economy cannot afford to fritter away. Indeed, there will be a 20% reduction in the entering workforce in the 16 to 24 year old age bracket through 1990. These numbers indicate that we need to develop the capabilities of all of our youth to their fullest potential. We must substantially improve our 35 to 45% high school dropout rate and as one cynical realist says (hopefully with tongue in cheek), "let us forget justice and think profits and economic survival". Data on issues like school dropouts and the shrinking youth cohort should be gathered and disseminated more extensively so that there is more public consciousness of the collective stake the entire society has in ameliorating the urban crisis.

The Need to Define and Achieve Quality at All Educational Levels

Several other issues warrant at least brief mention. There is growing concern for quality in every facet of American life from cars to schools. The recent reports on education have decried, for example,

"the rising tide of mediocrity" or the "lack of standards" in our schools. While acknowledging the undeniable need to bolster the academic quality of many of our programs, we cannot afford to retreat from our national concern with the issue of equity or access which has received such emphasis in the past few decades. Quality does not preclude equity or vice versa. These two transcendent goals are complementary and support each other. The consequences to our society of emphasizing one at the expense of the other are grave because of the economic and demographic imperatives discussed earlier which highlight the dramatic increases in young minority group members and the continuing commitment of equalizing educational opportunity which must be at the core of our democratic system. At the same time, however, the quality of many of our institutions has become shoddy and a parallel commitment to quality is essential if we are to compete economically and educationally. Data on both the quality and equity issues must be persistently and extensively gathered so that enlightened public policies can be formulated to maximize chances for achieving these vital interrelated goals.

The Weaknesses of Foreign Language Instruction

Another issue warranting some mention is the appalling decline in language training in the United States in a shrinking world with an interdependent global economy. A persuasive case can be made that our competitive position economically is weakened because of the deterioration in both the quality and quantity of our foreign language instruction. Many Japanese and Europeans, for example, know and speak our language. The numbers of our citizens able to converse in other tongues is abysmally limited. Our businesses thus have a distinct

disadvantage in areas like marketing and sales vis-a-vis their foreign competitors. The statistics tell the story more graphically than words. Only 15% of our high school students currently study foreign languages, the figure was 24% in 1965. Only 5% of high school students study foreign languages beyond the second year and just 8% of our institutions of higher education require students to have studied a foreign language; in 1966, 34% of the institutions required such instruction for admission. These shocking numbers should encourage us to welcome many new citizens who have the advantage of speaking languages other than English. These new residents who can speak Spanish and other languages can prove to be a valuable economic resource as we seek to improve our international economic position. The continuous collection and dissemination of data which reflect this crisis in foreign language instruction hopefully will ultimately improve a serious situation.

Relationships Between Elementary-Secondary and Higher Education

Another issue requiring the attention of educational leaders and data collectors is the need to more closely coordinate elementary-secondary and higher education. The twelfth grade, of course, is the magical and mystical dividing line between the two and efforts must be expanded to more effectively bridge the levels in areas where they overlap. We can no longer afford duplicative programs where they may exist. For example, many community colleges offer remedial and vocational programs that are quite similar to the offerings of school systems under the aegis of adult basic education. Mechanisms should be created at the local or regional level that will coordinate programs more effectively. Also, we ought to move away from categor-

ical set-asides and blatant political trade-offs that temporarily "buy" peace between the levels. If educators do not take the initiative in rationalizing their systems, politicians certainly will at a time of declining resources. Information about activities which bridge the levels such as the College Board's Project Equality should be compiled and widely disseminated.

There are major pragmatic reasons for increased communication between higher and elementary-secondary education. As the competition for dollars becomes keener, there is a real danger of dysfunctional interlevel conflict both for governmental and private funds. In California, for example, the recent comprehensive reform legislation included an $800 million tax increase to be used for the schools; higher education and other services were cut. Even in the area of private giving where higher higher education has had the terrain to itself, there have been developments that could generate negative competition between the levels. The public schools have just recently turned to the private sector for support and local and regional foundations are being created throughout the country to serve as the conduits for contributions. A new Public Education Fund has the explicit purpose of serving as a catalyst in the development of local and regional foundations which will serve as mechanisms to funnel private resources into the schools. Data on the dollars raised at the various levels should be collected and trends analyzed.

Although there has been little or no overt interlevel conflict thus far, the dangers of this occurring are all too real. Politicians are the first to say that internecine conflict within a policy realm like education could hurt everyone, particularly at a time when resources will be harder to find and competition is keener. Educa-

tional leaders from all segments of the enterprise have a responsibility to try to ensure that such interlevel conflict does not transpire.

The Appropriate Federal Role in the Shaping of Educational Policy

The appropriate role of the federal government in the shaping of educational policy remains a persistent and controversial issue. International political and economic issues and concerns would appear to require national responses if not huge federal programs. It seems unlikely that 50 state school systems, some 16,000 local school systems, and more than 3,200 post secondary educational institutions have either the human or economic resources for the expensive research and development investments that have to be made in the new technologies, science, math, foreign language and computer education. The necessary technological crash programs and heavy up-front investments needed in new areas like computer education must be promulgated at the federal level as we compete in an international economy against countries like Japan and West Germany which have national planning. Efforts should be made to consistently assess the capabilities of each level of government to provide new technologies in the instructional process.

Although there were without doubt excesses in some of the educational initiatives undertaken by the federal government in recent years, we cannot afford to throw the baby out with the bathwater. In other words, we need to find some middle ground between federal domination and a programmatic void in technical areas which the country cannot afford. Indeed, our concerns with areas like math, science and technology ought to serve as lightning rods as all segments of the

society acknowledge a common stake in national priority setting and a balanced federalism if we are to maximize the development of our human capital.

The major issue, in essence, is how we reconfigure a fragmented and uncoordinated educational and training system to meet emerging economic and workforce needs without stifling the strength of its diversity. A key component in this reconfiguration, as I have stressed, is widespread acceptance of a more generic and broader definition of education as representing more than just traditional schools and colleges which serve the young. Such a reconfiguration will have to be based on much more mutual understanding and exchange of information between and among the varied educational delivery systems. This understanding and these information exchanges will require new data bases on a wide array of non-traditional or non-institutional education service providers.

In Conclusion

In this paper, I have attempted to provide an environmental scan of a number of salient social, political and economic issues which impinge upon educational policymaking. Indeed, my overarching thesis is that schools are the dependent variables of larger social and economic forces which drive public and educational policy. NCES ought to broaden and diversify its approach to the collection and dissemination of information so that data relating to these larger environmental factors which so inordinately influence schools are woven into and amplify straight statistics pertaining more narrowly to school systems and educational institutions.

More accurate and broadly gauged data will be essential if elemen-

tary and secondary education is to maintain political and economic support at a time when less than 30% of the adult population has children enrolled in school. The recent reform movement offers unique opportunities because of the interest manifested in improving education by Governors, business and civic leaders and other political influentials. Economic support will be forthcoming, however, only if taxpayers are convinced rather quickly that there are tangible results of their increased investment as measured by improved student performance.

In fact, the reform movement may already have crested and there is an urgent need within the immediate future to sort out the various reforms and determine which have been most effective on a cost-benefit basis. Michael Kirst of Stanford University identifies the following four phases in the issue attention cycle: (1) alarmed discovery; (2) crisis activity; (3) disillusionment with results; and (4) return to neglect. A compelling case can be made that the education reform movement currently is rapidly passing through phase 2 and that its ability to endure will be predicated upon its effectiveness as measured in phase 3 which is impending.

Thus, NCES' current effort to redesign its elementary and secondary education data program comes at a particularly propitious time. Its data collection strategies should be tied in whenever possible to the reform movement which is sweeping the nation. Systematic data should be compiled which will determine which programs are successful and which are unsuccessful because the resources will not be available to support the entire panoply of reforms that have been offered. It is important to document as expeditiously as possible some of the results which appear to be salutary. Kirst, for example, points out that in California there are indications that there already

has been a 20% increase in high school science and math enrollments since the comprehensive reform legislation was recently enacted.

The following represents a very brief non-inclusive summary of a number of the major suggestions made in this paper:

1. A broader definition of education must be assumed to include other deliverers of education such as the private sector, the military, voluntary associations and many other providers of education and training services.

2. Greater communication and collaboration between and among traditional schools and other providers of educational services should be encouraged.

3. Data should be gathered from all deliverers of educational services not just traditional schools. Comparisons and exchanges of information should be made between the diverse sectors.

4. Data should consist of more than just straight school-focused statistics. Sources of information should include case studies, compendia of promising practices and processes, and examples of successful teaching and learning processes from all segments of the education and training world.

5. Data should be packaged in more diverse and creative ways rather than through monolithic statistical formats. Quick, incisive summaries should be provided and aggregate data should be supplemented by information from the building and district level within school systems.

6. In addition to the customary school related data, NCES reports should stress the collection and dissemination of more diversified and additional information in areas like

   (a) demography (age, race, region)
   (b) economic trends and employment opportunities
   (c) dropout rates
   (d) social data (single parents, latchkey kids)
   (e) quality and quantity of Math and Science teachers
   (f) success or failure of various differential staffing plans
   (g) status of equity and quality issues and their relationship
   (h) impact of technology
   (i) status of foreign language instruction